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The Ant Larvae of the Tribes Basicerotini and Dacetini: Second Supplement

(Hymenoptera: Formicidae: Myrmicinae)

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Subsequent to the publication of our first supplement on the larvae of the subfamily Myrmicinae (Wheeler and Wheeler 1960a)¹ we have received from other myrmecologists so much additional material that it has become necessary to publish another supplement.

Tribe BASICEROTINI

Brown and Kempf (1960: 165).—Differences between larvae of Basicerotini and Dacetini are based on our 1954 paper.

Genus BASICEROS Schulz

Brown and Kempf (1960: 171).—Larval characters after our 1954 description.

Genus RHOPALOTHRIX Mayr

We have changed our minds about *Rh. gravis* Mann (1954: 117): we now regard our material as mature and classify its profile as aspididri-form (Wheeler and Wheeler 1960b: 103, 106).

Genus EURHOPALOTHRIX Brown and Kempf

Profile myrmiciform. Head large. Body hairs numerous, short to long; of two types: (1) flexuous and denticulate and (2) flexuous, denticulate, ending in a sharp-pointed bulb, on the dorsum of AI to AVI (two per somite). Cranium subcordate. Antennae minute. Head hairs short to long, denticulate and moderately numerous. Mandibles leptothoraciform. Maxillae with a constriction between palp and galea.

In our 1960b key (p. 109) *Eurhopalothrix* would run to *Orectognathus*, from which it may be distinguished by its lack of bifid hairs.

EURHOPALOTHRIX AUSTRALIS Brown and Kempf

(Fig. 1)

Length (through spiracles) about 2 mm. Profile myrmiciform (i.e., stout and rather elongate; diameter greatest at AIV and AV; slightly attenuated anteriorly;

¹ We shall cite each of our papers the first time it is referred to with our names as authors; in subsequent citations we shall use date.

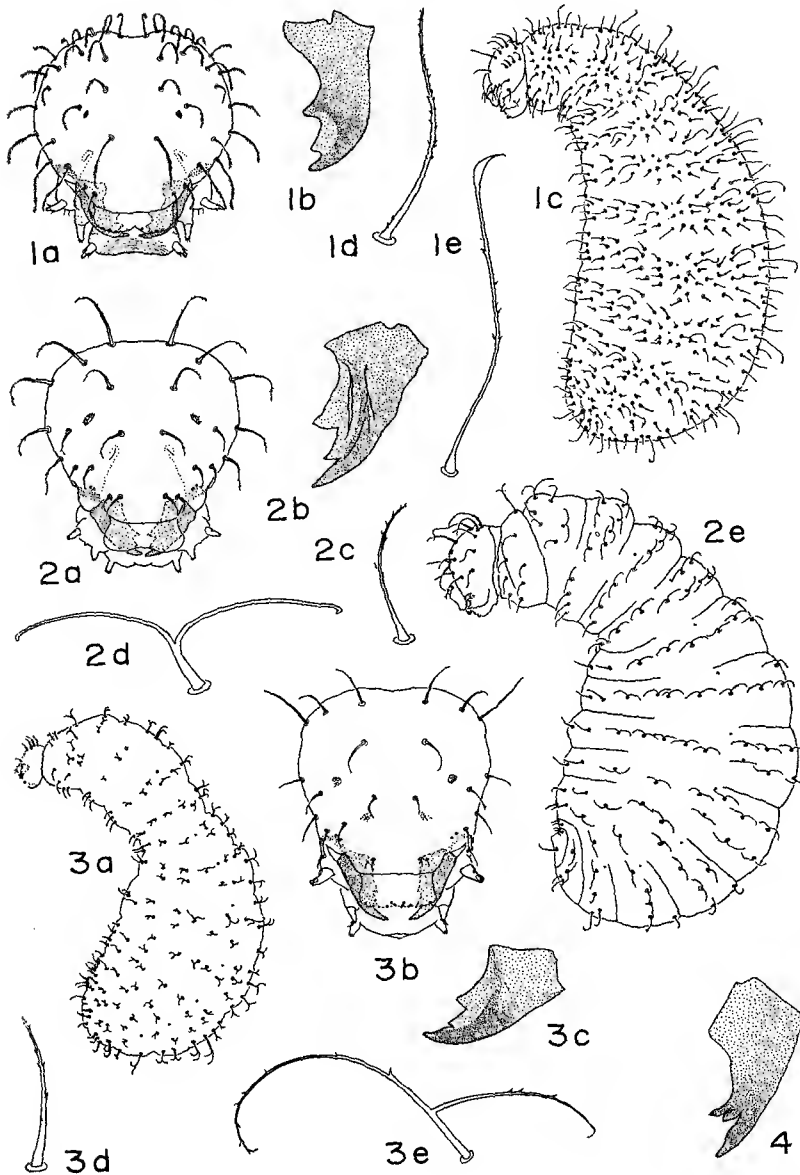


FIG. 1a-e.—*Eurhopalothrix australis*. a, Head in anterior view, $\times 111$; b, left mandible in anterior view, $\times 267$; c, larva in side view, $\times 35$; d, e, two types of body hairs, $\times 263$. FIG. 2a-e. *Colobostruma* sp. a, Head in anterior view, $\times 111$; b, left mandible in anterior view, $\times 267$; c, d, two types of body hairs, $\times 267$; e, larva in side view, $\times 42$. FIG. 3a-e.—*Mesostruma browni*. a, Larva in side view,

thorax stout and arched or bent ventrally, but not differentiated into neck; posterior end broadly rounded). Anus ventral. Head on anterior end and of about same diameter as T1. Spiracles small. Integument of ventral surface of thorax and AI and AII with few short transverse rows of minute spinules. Body hairs numerous and uniformly distributed, denticulate. Of two types: (1) 0.04–0.15 mm long, on all somites, shorter without and longer hairs with alveolus and articular membrane; (2) about 0.15 mm long, with stout shaft and slightly swollen bulb just below sharp-pointed tip, two on dorsal surface of each AI–AVI. Cranium somewhat broader than long and feebly cordate. Antennae minute, each with three sensilla, each bearing a minute spinule. Head hairs moderately numerous, short to long (0.038–0.075 mm), denticulate and slightly curved. Labrum bilobed, short and broad; each lobe with three or four minute hairs and/or sensilla on anterior surface, with minute spinules in short rows and with one isolated and two contiguous sensilla on ventral border, with coarse isolated spinules on the lateral border and with cluster of three sensilla on posterior surface; entire posterior surface spinulose, spinules minute and in numerous rows, rows transverse in middle half. Mandibles leptothoraciform (i.e., moderately narrow, tapering gradually and curving gradually to apical tooth; anterior surface produced medially into blade with two subapical teeth), with three or four denticles on posterior surface. Maxillae large, each divided by constriction between palp and galea, distal portion spinulose and with conoidal apex; palp digitiform, with five sensilla (two apical and encapsulated and three subapical and bearing one spinule each); galea digitiform and bearing two apical sensilla. Labrum very thick, short, broad and feebly bilobed; anterior surface densely spinulose, spinules in transverse rows; each palp with five sensilla (two apical and encapsulated, three lateral and with one spinule each); isolated sensillum between each palp and opening of sceriteries, latter a transverse slit. Hypopharynx densely spinulose, spinules long and in numerous transverse rows. (Material studied: six larvae from New South Wales, courtesy of Rev. B. B. Lowery.) In alcohol mature larvae cling to each other by means of the interlocked hairs.

Tribe DACETINI

Our latter-day taxonomists say that we should use all possible kinds of characters in classification. Here is a possible chemical character of the tribe Dacetini: when larvae are cleaned in 10% KOH, the insoluble meconium turns red. We have found this to be true of the following species: *Colobostruma* sp., *Epopostruma alata*, *E. quadrispinosa*, *Mesostruma browni*, *Orectognathus antennatus*, *O. mjobergi*, *O. nigriventris*, *Strumigenys perplexa*.

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×18; b, head in anterior view, ×88; c, left mandible in anterior view, ×177; d, e, two types of body hairs, ×267. FIG. 4.—*Strumigenys perplexa*. Left mandible in anterior view, ×290.

Genus ACANTHOGNATHUS Mayr

G. C. and J. Wheeler (1969: 110).—Generic characterization.

Wilson (1962: 414).—The danger of piercing the skin of the larvae is avoided thus: "a pair of small teeth near the base of the mandibles are used to grip and carry brood, thus by-passing the apical teeth (Mann, 1922: later confirmed by W. L. Brown, *in litt.*, 1961)." But we can find no such statement in Mann (1922).

ACANTHOGNATHUS RUDIS Brown and Kempf

G. C. and J. Wheeler 1969: Description and figures.

Genus COLOBOSTRUMA Wheeler

Profile orectognathiform. Anus with a small posterior lip. Head large. Body hairs sparse and short; of two types: (1) smooth, deeply bifid with the tips curling away from each other and (2) unbranched and denticulate. Frons and clypeus bulging. Antennae small. Head hairs few and short to long; unbranched and either smooth or denticulate. Mandibles leptothoraciform.

In our 1960b key the genus *Colobostruma* runs to *Orectognathus*, from which it can be distinguished by the lack of denticles on its bifid hairs.

COLOBOSTRUMA sp.

(Fig. 2)

Length (through spiracles) about 2.1 mm. Profile orectognathiform (i.e., abdomen rather stout, diameter greatest at AIV and AV, attenuated anteriorly; thorax rather slender and curved ventrally, forming indistinct neck; posterior end broadly rounded). Head large. Anus ventral, with posterior lip. Leg, wing and gonopod vestiges present. About ten differentiated somites. T2 spiracle about twice diameter of remainder. Integument of entire venter and of dorsal surfaces of posterior somites with minute spinules in short transverse rows, elsewhere spinules minute and isolated. Body hairs sparse and short. Of two types: (1) 0.044–0.125 mm long, curved and denticulate, on ventral and lateral surfaces of thorax and AI-AVIII and on all surfaces of AIX and AX: (2) about 0.14 mm long, smooth, deeply bifid, branches strongly divergent and tips curled, on dorsal and lateral surfaces of all somites except AIX and AX. Cranium subhexagonal; frons and clypeus bulging. Antennae small, each with three sensilla, each bearing one rather long spinule. Head hairs few, 0.03–0.15 mm long, smooth or with minute denticles. Labrum feebly bilobed; narrowed dorsally; each lobe with three minute hairs and—medially—minute spinules in short transverse rows on anterior surface, with one isolated and two contiguous sensilla and numerous spinules on ventral border, with four isolated and three contiguous sensilla on posterior surface; entire posterior surface densely spinulose, spinules minute and in numerous

short transverse rows. Mandibles leptothoraciform (i.e., moderately narrow; tapering gradually and curving gradually to apical tooth; anterior surface produced medially into blade which bears two subapical teeth), the teeth large and directed medially. Maxillae large, lobose and adnate; each palp a skewed peg with four apical and one lateral sensilla; each galea digitiform, with two apical sensilla. Labium thick; anterior surface spinulose, spinules minute and in transverse rows; each palp a short frustum, with four apical and one lateral sensilla; isolated sensillum between each palp and opening of sericteries, latter a transverse slit. Hypopharynx densely spinulose, spinules rather long and in numerous subtransverse rows, rows so close together that spinules overlap. (Material studied: eight larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

Genus DACETON Perty

Brown and Wilson (1959: 290).—"Daceton possesses, in addition to truly primitive features, characters that appear to represent significant specializations away from the main line of dacetine evolution, viz., in sculpturing, worker polymorphism, cephalic articulation, and larval morphology (see Brown 1953a; and Wheeler and Wheeler, 1954)."

DACETON ARMIGERUM (Latreille)

The mature workers of this species are highly polymorphic; the mature worker larvae range from 7 mm to 12 mm in length (through spiracles). Sexual larvae are 12.3–12.9 mm (through spiracles); the head hairs about twice as numerous, otherwise very similar to the worker larva. (Material studied: numerous larvae from Buenos Aires—25 km S. of Pucallpa, Peru.) Wilson (1962: 413–414) discussed brood care, feeding, and transport in this species.

Genus EPOPOSTRUMA Forel

EPOPOSTRUMA ALATA Forel

Length (through spiracles) about 3.3 mm. Very similar to *E. sp.* (1954: 128), except in following details. Integument of venter and of dorsal surface of posterior somites with minute spinules in short transverse rows, elsewhere spinules shorter and less numerous. Body hairs: (1) 0.038–0.125 mm long; (2) 0.075–0.163 mm long. Head hairs longer (0.075–0.175 mm long). Mandibles stouter and with medial teeth larger and directed more nearly medially. (Material studied: eight larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

EPOPOSTRUMA FROSTI (Brown)

Length (through spiracles) about 5.3 mm. Very similar to *E. sp.* (1954: 128) except as follows. Thorax and AI more slender. Anus with posterior lip. Integument of venter of neck and of dorsal surface of posterior somites with minute spinules in short transverse rows. Body hairs more numerous. Of three types:

(1) 0.05–0.125 mm long, few, with single shaft and few denticles, on venter of anterior somites; (2) 0.075–0.15 mm long, with denticulate hooked tip, on remainder of venter of abdomen; (3) 0.05–0.4 mm long, with short-bifid tip, branches sparsely denticulate, on dorsal and lateral surfaces of all somites. Cranium with straight sides. Head hairs 0.03–0.125 mm long, usually with few denticles. Mandibles with apex more curved, teeth larger and more widely separated. (Material studied: 14 larvae from South Australia, courtesy of Rev. B. B. Lowery.)

EPOPOSTRUMA QUADRISPINOSA Forel

Length (through spiracles) about 4.0 mm. Very similar to *E. sp.* (1954: 128) except as follows. Body hairs (1) 0.05–0.125 mm long, unbranched, with hooked tip, on venter of each somite; (2) 0.05–0.125 mm long. Head hairs 0.025–0.125 mm long. Mandibles with apex more curved, teeth larger and more widely separated. (Material studied: 15 larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

Genus MESOSTRUMA Brown

Profile aspididriform. Body hairs sparse. Of two types: (1) with single denticulate shaft; (2) deeply bifid, with branches denticulate. Head hairs sparse and smooth or with a few denticles. Mandibles leptothoraciform, with two medial teeth.

In our 1960b key *Mesostruma* would run to *Alistruma* from which it can not be separated at present. We are giving below a complete description of *M. browni*, because we regard *M. laevigatus*, which we described (1954: 130), as a sexual larva.

MESOSTRUMA BROWNI Taylor

(Fig. 3)

Length (through spiracles) about 4.0 mm. Profile aspididriform (i.e., moderately stout; no neck, but thorax and first two abdominal somites strongly curved ventrally; diameter greatest at AV, decreasing to A1, then increasing slightly to T2, decreasing rapidly to diameter of head; dorsal profile C-shaped, ventral J-shaped; anus ventral). Anus without lip. Spiracles small, T2 largest. Integument of venter of anterior somites and dorsa of posterior somites with minute spinules in short transverse rows. Body hairs sparse. Of two types: (1) 0.038–0.125 mm long, on all surfaces of AX and on venter of remaining somites, single shaft with minute denticles; (2) 0.063–0.15 mm long, deeply bifid, with branches denticulate, on dorsal and lateral surfaces of all somites except AX. Cranium subhexagonal in anterior view, as broad as long; occiput feebly concave. Antennae very small, each with three sensilla, each bearing a rather long spinule. Head hairs few, 0.025–0.125 mm long, smooth or with few denticles. Labrum small; breadth twice length; subrectangular, with ventral corners rounded, medial border feebly concave; each lobe with three or four sensilla on anterior surface near ventral border, with cluster of three sensilla on ventral border and with three contiguous sensilla on posterior surface; entire posterior surface spinulose, spinules minute, dorsal stouter and ventral finer. Mandibles leptothoraciform (i.e., moderately narrow;

tapering gradually and curving gradually to apical tooth; anterior surface produced medially into blade with two subapical teeth). Maxillae short and lobose; palp chair-shaped, with one lateral (bearing spinule) and four apical (two encapsulated and two bearing one spinule each) sensilla; galea a frustum with two apical sensilla. Labium with numerous short rows of minute spinules on anterior surface; palps similar to maxillary palps, but shorter; isolated sensillum between each palp and opening of sericteries; the latter a transverse slit. Hypopharynx with few short arcuate rows of spinules. (Material studied: six larvae from Canberra, ACT, courtesy of Rev. B. B. Lowery.)

Genus NEOSTRUMA Brown

NEOSTRUMA MUSTELINA (Weber)

Brown 1959: 9—"In one natural nest, an entomobryid was found with larvae feeding on it."

Genus ORECTOGNATHUS Mayr

ORECTOGNATHUS ANTENNATUS F. Smith

Length (through spiracles) about 4.2 mm. Similar to *O. clarki* (1954: 126) except as follows. Neck more slender, remainder of abdomen more swollen. Body hairs (1) 0.05–0.2 mm long, longer with fewer denticles and tending toward single hook dorsally, ventrally shorter and more denticulate, flexuous; (2) 0.06–0.15 mm long, few, deeply bifid, with few denticles on each branch. Cranium subrectangular, with dorsal border feebly concave. Head hairs shorter (0.025–0.125 mm long). Labrum broader ventrally; ventral border of each lobe with two isolated and two contiguous sensilla. Each mandible with apical tooth sharper and medial teeth larger. (Material studied: seven larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

ORECTOGNATHUS MJOBERGI Forel

Length (through spiracles) about 4.2 mm. Similar to *O. clarki* (1954: 126) except as follows. Body hairs of two types: (1) 0.025–0.075 mm long, bifid with branches denticulate, on dorsal and lateral surfaces of all somites; (2) 0.06–0.24 mm long, with single denticulate shaft (sometimes with denticulate side branch), largely confined to the venter but with transverse band around middle of each somite. Cranium subrectangular, with occiput feebly concave. Entire posterior surface of labrum spinulose, spinules minute and in short transverse rows. (Material studied: numerous larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

ORECTOGNATHUS NIGRIVENTRIS Mercovich

IMMATURE LARVA.—Length (through spiracles) about 2.5 mm. Similar to *O. clarki* (1954: 126) except as follows. Body hairs of three types: (1) 0.05–0.25 mm long, shortest ventrally, slightly curved to flexuous, with minute denticles; (2) 0.1–0.3 mm long, deeply bifid, few on dorsal and lateral surfaces of each somite;

(3) about 0.3 mm long, uncinatc, with flexuous shaft, two to six on T2-AX. Head very large. Head hairs 0.025-0.275 mm long, slightly curved and smooth or with few denticles. (Material studied: numerous immature larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

ORECTOGNATHUS ROSTRATUS Lowery

Length (through spiracles) about 3.5 mm. Similar to *O. clarki* (1954: 126) except as follows. Integument of venter of anterior somites and of dorsum of AX with minute spinules in short transverse rows. Body hairs (1) 0.06-0.18 mm long, bifid, with denticles; (2) 0.025-0.23 mm long, on ventral surface; (3) about 0.3 mm long, with stout shaft and small single hook, two on dorsum of each AI-AV. Cranium subrectangular but with occipital border feebly concave. Head hairs 0.025-0.175 mm long, slightly curved and usually with few denticles. (Material studied: six larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

Genus STRUMIGENYS F. Smith

STRUMIGENYS PERPLEXA F. Smith

(Fig. 4)

Length (through spiracles) about 1.9 mm. Similar to *S. louisianae* (1954: 136) except as follows. Body hairs shorter: (1) 0.025-0.06 mm long, on venter of each somite; (2) 0.038-0.1 mm long; (3) about 0.15 mm long. Head hairs shorter (0.013-0.075 mm long). Labrum with breadth only 1½ times length. Mandibles with all teeth blunter, medial teeth small, close together and divergent. Maxillary palp represented by cluster of three sensilla. Each labial palp represented by cluster of four sensilla. (Material studied: numerous larvae from New South Wales, courtesy of Rev. B. B. Lowery.)

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